

09/893,803

F0660

REMARKS

Claims 1-14 are currently pending in the subject application and are presently under consideration. A clean version of all claims is found at pages 2-8. New claims 15-30 have been added herein to emphasize various novel aspects of the subject invention. No new searching should be required via addition of these claims. The new claim amendments are found at pages 13-15 of this Reply.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I. Rejection of Claims 1-14 Under 35 U.S.C. 103(a)

Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ausschnitt (US 5,629,772) in view of the acknowledged prior art of the instant specification and Coronel, *et al.* (US 5,658,418). This rejection should be withdrawn in view of the below-noted deficiencies of these references vis a vis the claimed invention.

The Examiner has the burden under 35 U.S.C. §103 to establish a *prima facie* case of obviousness. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). To do that, the Examiner must show that some objective teaching in the prior art or some knowledge generally available to one of ordinary skill in the art would lead an individual to successfully combine the relevant teaching of the references so that all claim limitations are suggested. *Id.*

M.P.E.P. 706.02(j) states:

"To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)."

09/893,803

F0660

With regard to claims 1 (and claims 2-7 which depend therefrom), 8 (and claims 9-11 which depend therefrom), and 12-14, the Examiner, citing Ausschnitt in view of Coronel, states that "it would have been obvious to use other known types of optical measurements for such monitoring." However, neither Ausschnitt nor Coronel provide the necessary motivation to combine these references and, in fact, teach away from the present invention.

The Examiner states that "Ausschnitt teaches regulation of an etch process using optical measurements." Ausschnitt actually teaches "monitoring and control of product through accurate measurement of bias of minimum feature ..." (col. 8, lines 15-17) (emphasis added). The word "optical" used within Ausschnitt refers to "images" and/or "imaging." This is made explicit in Ausschnitt by sections found within such as "Fundamentals of Image Shortening" and "Factors contributing to Image Shortening" (col. 3-4) (emphasis added). The reference also refers to the "detected image" (col. 6, lines 42, 46-47). The present invention employs scatterometry which is a non-imaging optical dimensional metrology technique. Imaging optics, as described in Ausschnitt cannot be utilized to control multi-sloped devices due to their inability to distinguish gradients (*i.e.*, slopes - both positive and negative, patent and latent).

Additionally, Ausschnitt does not disclose nor teach controlling the etch process while the etching is being performed as in the present invention. The present invention includes "*a process analyzer operatively coupled to the measuring system and the etch component controller, wherein the process analyzer receives the measured parameters from the measuring system and analyzes the measured parameters to determine whether adjustments to the etching components are needed to fabricate the multi-sloped features within desired critical dimension tolerances ...*" Ausschnitt states, "*Consequently, following* the removal of all remaining resist, another measurement at block 28 is performed to ensure that the etched image is within acceptable tolerances." (col. 7, lines 44-46) (emphasis added). And, Ausschnitt also states, "*Thus by successive measurement of the test site after resist image and after etching process one can determine the etch process bias.*" (col. 7, lines 62-62) (emphasis added). It is also significant to note in Ausschnitt that "Fails" require that "the wafer(s) must be scrapped (*rework is not possible post-etch*)."
(col. 8, lines 7-8). Thus,

09/893,803

F0660

Ausschnitt is based on post etch measurements and cannot be employed during the etch process, teaching away from the present invention.

The Examiner states, "In general it is known that optical measurements in etching processes can be made *in situ* for control of the etching process." However, the Examiner admits that "Coronel et al does not show a scatterometer as the optical measuring apparatus" (emphasis added) and follows with "it would have been obvious to use other known types of optical measurements for such monitoring." Applicants' representative respectfully traverses the latter statement. Coronel teaches a process for measuring thicknesses of material utilizing a light source. However, Coronel teaches "a light source illuminates a portion of the structure at a *normal angle of incidence* through the view port." (abstract, lines 5-7) and that "For several reasons, a *normal angle of incidence* is preferred." (col. 7, lines 47-52). Thus, Coronel teaches a thickness measuring process that requires normal angles of incidence to operate, teaching away from the present invention which employs scatterometry. Impinging a surface solely as taught in Coronel, even *in situ*, prohibits the controlling of "etching components operative to etch at least one aspect of a multi-sloped feature on a wafer..." (emphasis added) as found in the present invention.

The Examiner has not stated nor particularly pointed out any motivation or suggestion found in neither Ausschnitt nor Coronel to combine the references. Nor is there a reasonable expectation of success in combining the references as stated *supra*. Additionally, the references, separately or combined, neither teaches nor suggests all claim limitations of the present invention. For the above reasons, a *prima facie* case of obviousness has not been established, and applicants' representative respectfully requests that the rejection be withdrawn.

09/893,803

F0660

II. Conclusion

The present application is believed to be condition for allowance in view of the above amendments and comments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063.

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicant's undersigned representative at the telephone number listed below.

Respectfully submitted,

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